

**1 November 1998**



**Operations**

**ELECTRONIC COMBAT ACTIVITIES SERENE  
BYTE/PACER WARE REPROGRAMMING  
PROCEDURES**

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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This instruction implements AFRPD 10-701, *Operations* and establishes procedures for accomplishing all SERENE BYTE exercises/PACER WARE procedures. It identifies the specific steps needed in order to achieve a successful reprogramming exercise. It applies to operations and maintenance areas specifically, 302 FS/DO, 302 FS/MAS, 944 MXS/LGMV, LGMVE, LGMVS.

**SUMMARY OF REVISIONS**

This revision reflects the correct antecedent for this instruction and changes office titles.

**1. Instruction Objectives:**

- 1.1. Exercise the capability to reprogram electronic warfare (EW) equipment.
- 1.2. Enhance unit Electronic Combat (EC) training potential through increased aircrew awareness and closer operations-maintenance relationship for EW matters.

**2. EWO or ECP Responsibilities.** The wing Electronic Warfare Officer (EWO) or Electronic Combat Pilot (ECP) will ensure that all requirements and taskings have been accomplished as defined by the SERENE BYTE Exercise Plan. The EWO/ECP will have overall responsibility for all SERENE BYTE/PACER WARE activity, although the EWO/ECP may appoint alternates to implement and monitor the progress of the exercise.

**3. Conduct of Exercise Operations:**

- 3.1. SERENE BYTE Exercises/PACER WARE activities will commence upon receipt of instruction from Robins AFB or Eglin AFB. ACC may issue added instructions prior to, during, or after the exercise in support of exercise/activity objectives. Upon receipt of these instructions, the Specialist Flight

and/or Avionics Flight (LGMVS) will reprogram a minimum of two Radar Threat Warning System (RTWS) signal processors and/or two Electronic Counter Measure (ECM) Pods (LGMVE).

3.2. To meet the requirement for timely post exercise effectiveness evaluation, and still provide maximum training benefits to unit reservists, 944 FW reprogramming activities will be in two phases:

3.2.1. Phase I – The Specialist Flight and/or Avionics Flight will carry out all action to reprogram a minimum of two RTWS and/or two ECM Pods as soon as practical after receipt of reprogramming data. All standard provisions of ESC worldwide SERENE BYTE Exercise Plan, any higher headquarters additions thereto, and all post-exercise critique and reporting requirements apply as written:

Evaluate thoroughly all SERENE BYTE/PACE WARE actions/results according to appropriate Tabs to ESC worldwide SERENE BYTE exercise plan.

Submit completed critiques to addressees listed.

Return the reprogrammed Line Replacement Units (LRUs) to original configuration.

Return all SERENE BYTE/PACER WARE data tapes to Robins AFB or Eglin AFB as applicable if reprogramming is unsuccessful.

Retain all successfully used reprogramming materials (tapes, SERENE BYTE Programmable Read Only Memory (PROM), etc.) for training purposes according to Phase II.

3.2.2. Phase II – A second reprogramming effort can be performed during the next available UTA for training as determined necessary by the shop supervisor unless: SERENE BYTE/PACER WARE and the unit's Unit Training Assembly (UTA) coincide and all reservists present received reprogramming training during Phase I activities; or reprogramming diskette was defective/PROM burner was inoperative during Phase I and situation was not resolved prior to the next UTA. Phase II activity will include the reprogramming of at least one additional LRU or ECM pod and should be conducted to derive maximum training benefit for pilots, EWO/ECP, intelligence, and maintenance.

**4. Exercise Reporting.** Post exercise reporting will be done by all participating maintenance shops using the checklists **Attachment 1, 2, and 3** to this instruction and the format in Appendix 3 to Annex R of ESC worldwide SERENE BYTE Exercise Plan.

## **5. Maintenance Responsibilities:**

5.1. The primary and alternate OPR will:

5.1.1. Ensure the Logistics Group commander is aware of the exercise.

5.1.2. Demonstrate the capability to effectively reprogram designated EW systems when directed to make an emergency change.

5.1.3. Be responsible for support equipment/PROMs required for mobility commitments and exercise/training.

5.1.4. Provide Point of Contact (POC) for SERENE BYTE/PACER WARE activities. Send letter of names and phone numbers of both operations and logistics POCs to HQ AFRC/DOX/LGM and 10 AF/DO/LG.

- 5.1.5. Ensure all requirements appropriate in attachments to this outlined instruction are:
- 5.1.6. Reviewed and planned for prior to the exercise and coordinated with other unit training sections.
- 5.1.7. Executed promptly in accordance with exercise timing guidelines.
- 5.1.8. Completed with a prompt, comprehensive post-exercise report submitted to appropriate addressees.
- 5.1.9. Implement actions to resolve any deficiencies identified in procedures, equipment, or training as a result of SERENE BYTE/PACER WARE participation.

CRAIG S. FERGUSON, Colonel, USAFR  
Commander

**Attachment 1****OPERATIONS CHECKLIST****A1.1. Phases 1 and 2:**

A1.1.1. Pre-exercise:

A1.1.2. Review group operating instructions for EW reprogramming. Update and disseminate, if required.

A1.1.3. Ensure a current letter authorizing personnel to pick up SERENE BYTE/PACER WARE message traffic is on file at the base communications center.

A1.1.4. Coordinate with the Base Communication Center (BCC) that the Defense Messaging System (DMS) is operational and that software is compatible with automatic activation of DCS/EDTT upon receipt of AUTODIN reprogramming data message.

A1.1.5. Establish local procedures to provide a backup method of receiving SERENE BYTE/PACER WARE when AUTODIN fails or is not available. Coordinate requirements/support with 10 AF/DO/LG.

A1.1.6. Maintain close coordination with unit ECM Shop for all reprogramming activities and take overall responsibility for unit preparation and performance in meeting all SERENE BYTE/PACER WARE requirements

**A1.2. Exercise/Activity:**

A1.2.1. Provide operations interface with Avionics Flight Chief, Specialist Flight Chief, AIS, and ECM shops on all changes to EW equipment settings.

A1.2.2. Maintain operational status of EW equipment and the support equipment necessary to maintain it.

A1.2.3. Work with intelligence (302 FS/IN) to develop tactics and procedures to counter EC threats expected to be in the Area of Responsibility (AOR).

A1.2.4. Request for retransmission of exercise data message through the BCC.

A1.2.5. Disseminate EC related information to pilots/mission planners.

A1.2.6. Brief USAF impact statement to pilots at an appropriate training opportunity for no-fly SERENE BYTE/PACER WARE activities. Also, brief the mission planning cell (MPC) during an Operational Readiness Exercise (ORE)/Operational Readiness Inspection (ORI) or war.

A1.2.7. Institute tactics or mission data changes when reprogramming does not require/task new equipment settings or software.

A1.2.8. Verify reprogramming of applicable EW systems. After reprogramming, brief 944 OG/CC and pilots on new EW system capability.

A1.2.9. Record significant actions/observations throughout the exercise to accumulate data for post-exercise reporting.

**A1.3. Post Exercise:**

A1.3.1. Conclusion of Phase 1:

A1.3.1.1. Consolidate inputs from Avionics shops/flights critique and issue a joint operations-maintenance post-exercise report within five working days.

A1.3.1.2. Submit the report to the following addressees as appropriate:

FOR UNCLASSIFIED ONLY: EMAIL OPR @langley.af.mil

HQ ACC LANGLEY AFB VA/DOTE/LGFA//

EW MGT DIR ROBINS AFB GA/LNE/LNEW//

36 ETS EGLIN AFB FL/CC//

68 TSS EGLIN AFB FL/ESR//

10 AF NAS FORT WORTH JRB TX/DOOE//

**A1.4. Conclusion of Phase II:**

A1.4.1. Ensure all SERENE BYTE reprogrammed EW equipment is returned to original configuration.

A1.4.2. Submit a message to HQ AFRC/DOXE/LGMA and 10 AF/DO/LG summarizing Phase II activities and assess the value of repeating the reprogramming exercise for training purposes. Include other comments or suggestions as appropriate. (Note: If appropriate and no classified material is discussed, an e-mail to the above addresses is adequate.)

**Attachment 2****MAINTENANCE CHECKLIST**

**A2.1. Instructions .** 302 FS Specialist Flight Chief and 944 MXS, AIS, and ECM shop chiefs will thoroughly review all pertinent annexes of ESC worldwide SERENE BYTE exercise plan. They will work closely with the EWO/ECP during preparation, execution, and post-operational reporting periods of this exercise. The exercise goal is to have all reprogramming tasks completed and verified correct within 2 duty days of data message receipt at the local Communication Center. Thorough documentation of events and actions will be needed for the unit to evaluate and report the effectiveness of SERENE BYTE as a training/readiness tool. Submit maintenance exercise results/comments to unit EWO/ECP at the conclusion of the exercise. A maintenance post-exercise report will be generated not later than three workdays after End Exercise (ENDEX).

**A2.2. Requirements:****A2.2.1. Pre-exercise/Activity:**

A2.2.1.1. Review/update reprogramming procedures as necessary.

A2.2.1.2. Ensure support equipment necessary for reprogramming is in serviceable condition.

A2.2.1.3. Ensure that a current letter authorizing individuals to pick up SERENE BYTE/PACER WARE data is on file at the local communication center.

**A2.2.2. Trans-exercise. Maintain a chronological log of events and unit actions to include the following:**

A2.2.2.1. SERENE BYTE/PACER WARE data receipt at local communication center (including any servicing requirement/retransmittals/problems).

A2.2.2.2. Notification times (SERENE BYTE/PACER WARE alert message, data message, narrative Technical Compliance Technical Order (TCTO) message). Notify Quality Assurance upon receipt of SERENE BYTE/PACER WARE messages due to TCTO nature.

A2.2.2.3. Actual pick up times (same as above).

A2.2.2.4. Administrative/exercise control delays: Such as, message notification during evening hours, but pick-up and reprogramming activities postponed (XX hours YY minutes) until Civil Service duty shift.

A2.2.2.5. Support equipment status (if not serviceable, identify equipment, malfunction, and corrective action status) and Estimated Time in Commission (ETIC).

A2.2.2.6. AUTODIN transmission/SARAH LITE separation program loading.

A2.2.2.7. Memory verification production/problems.

A2.2.2.8. Requests for retransmission of exercise data message (paper tape or computer disk) will be through unit information processing center.

A2.2.2.9. Back shop/flight line test results.

A2.2.2.10. EWO/ECP notified of successful/unsuccessful reprogramming.

**A2.3. Complete Maintenance Evaluation of Actions/Results.** Coordinate a unit response thoroughly covering both operations and maintenance lessons learned in the post-exercise report to higher headquarters.

A2.3.1. Within four work days of SERENE BYTE ENDEX:

A2.3.2. Return all reprogrammed equipment to original configuration. Aircraft not returned immediately to original configuration is Red X for the RTWS system. SERENE BYTE cannot be flown; a PACER WARE will permanently change system configuration.

A2.3.2.1. Screen and mail to WR-ALC/MMRRSB, Robins AFB, GA, 31098-6001, only those exercise PROMs/data materials which are determined to be bad. Ensure that each PROM/tape is clearly marked with the proper reference designation and the package includes the unit address, telephone number, type of EW system, and a short description of problem encountered.

A2.3.2.2. If programming was successful, do not return tapes/computer disks. Retain for Phase II reprogramming training, or destroy as appropriate.

A2.3.2.3. Units returning PROMs/Tapes/data material will notify WR-ALC/MMRRSB by message of package number and date sent. Send information copies of message to AFEWC/EWO, HQ AFRC and 10 AF SERENE BYTE Project Officers.

**Attachment 3****SERENE BYTE/PACER WARE AFTER ACTION AND ULM MESSAGE REPORT FORMAT**

(Classified SECRET when completed)

**SECTION 1 – INTRODUCTION**

A. 944 FW LUKE AFB AZ

TYPE A/C: F-16

NUMBER OF LRUs: \_\_\_\_\_

SUCCESSFUL (YES/NO)

VERIFICATION METHOD: \_\_\_\_\_

**SECTION II – COMMUNICATIONS**

TO BE COMPLETED BY COMM CENTER AND DISTRIBUTED WITH MESSAGE.

**SECTION III – MAINTENANCE**

EW SYSTEM(S): \_\_\_\_\_

SUPPORT EQUIPMENT SERVICEABILITY: \_\_\_\_\_

DTG OF NOTIFICATION BY LOCAL COMM CENTER OF REPROGRAMMING MSG/TAPE:

\_\_\_\_\_

DTG OF RECEIPT FROM LOCAL COMM CENTER OF REPROGRAMMING MSG/TAPE:

\_\_\_\_\_

DTG OF AUTODIN TRANSMISSION DATA AND TAPE SEPARATION PROGRAM LOADED:

\_\_\_\_\_



DTG OF SUCCESSFUL SEPARATION OF CHIP, MEMORY VERIFICATION TAPES, COMPUTER DISKS, OR DETAIL DESCRIPTION OF SEPARATION DIFFICULTIES (HEADER, BLANK SPOTS, ETC): \_\_\_\_\_

\_\_\_\_\_

DTG OF FIRST LRU/MLV START/COMPLETION OF REPROGRAMMING WITH DETAILED DESCRIPTION OF DIFFICULTIES: \_\_\_\_\_

\_\_\_\_\_

(Classified SECRET when completed)

**Attachment 4****SERENE BYTE/PACER WARE AFTER ACTION AND ULM MESSAGE REPORT FORMAT**

(Classified SECRET when completed)

DTG OF FIRST AIRCRAFT START/COMPLETION OF REPROGRAMMING WITH DETAILED DESCRIPTION OF DIFFICULTIES. ( TO BE COMPLETED BY SPECIALIST FLIGHT):

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DTG OF LAST AIRCRAFT COMPLETION OF REPROGRAMMING DESCRIPTION OF DIFFICULTIES. (TO BE COMPLETED BY SPECIALIST FLIGHT):

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WERE ANY RETRANSMISSIONS REQUIRED (YES / NO), HOW BETWEEN REQUEST AND ARRIVAL? \_\_\_\_\_

WERE UNSUCCESSFUL REPROGRAMMING TAPES/PROMS FORWARDED TO WR-ALC? (DTG): \_\_\_\_\_

DETAILED DESCRIPTION OF ADDITIONAL REPROGRAMMING PROBLEMS:

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LESSONS LEARNED: \_\_\_\_\_

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RECOMMENDATIONS: \_\_\_\_\_

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GRADE/NAME/OFF SYM/DSN: \_\_\_\_\_

(Classified SECRET when completed)